

***Deretrema (Spinoderetrema) scorpaenicola* sp. nov.**  
**(Digenea, Zoogonidae)**

**from the gall-bladder of western Mediterranean teleosts**

by Pierre BARTOLI and Rodney A. BRAY

**Abstract.** — *Deretrema (Spinoderetrema) scorpaenicola* n. sp. is reported from the gall-bladder of *Scorpaena porcus* (type host), *Serranus scriba*, *S. cabrilla* and *Labrus merula* off the western coast of Corsica (the Scandola Nature Reserve). In the former host it occurs at a prevalence of 24.6% and the latter three hosts are probably accidental. *D. (S.) scorpaenicola* is most similar to *D. (S.) Sebastodis* (Yamaguti, 1934) and *D. (S.) acutum* Pritchard, 1963, but differs in the length of the cæca, the position of the testes relative to the ventral sucker and the range of egg-sizes.

**Key-words.** — *Deretrema*, *Spinoderetrema*, Zoogonidae, Digenea, *Scorpaena*, *Serranus*, *Labrus*, Mediterranean.

**Résumé.** — *Deretrema (Spinoderetrema) scorpaenicola* sp. nov. est décrit à partir de nombreux exemplaires trouvés dans la vésicule biliaire de Téléostéens en provenance de la Réserve Naturelle de Scandola (Corse). Le quart des effectifs de *Scorpaena porcus* (hôte type) est parasité (24.6%) tandis que *Serranus scriba*, *S. cabrilla* et *Labrus merula* sont des hôtes accidentels. *D. (S.) scorpaenicola* est proche de *D. (S.) Sebastodis* (Yamaguti, 1934) et de *D. (S.) acutum* Pritchard, 1963 mais s'en éloigne par la longueur des cæcums digestifs, la position des testicules par rapport à la ventouse ventrale et les dimensions de ses œufs.

**Mots-clés.** — *Deretrema*, *Spinoderetrema*, Zoogonidae, Digenea, *Scorpaena*, *Serranus*, *Labrus*, Méditerranée.

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The family Zoogonidae includes several species which inhabit unusual sites in their fish (mainly teleost) hosts. Although most species are reported from the intestine some are found in the urinary bladder, some in the bile-duct and some in the gall-bladder. The genus *Deretrema* Linton, 1910 contains several species which occur in the latter site, and this paper presents a description of a further species from this site in four species of Mediterranean fishes.

#### MATERIAL AND METHODS

The parasites were collected live. Some worms were flattened between slide and coverslip, killed by heating and fixed in Bouin-Hollande fluid. Others were dropped into Berland's fluid

for one minute and then stored in 80 % alcohol. All were stained in Grenacher's borax carmine, and mounted in Canada balsam.

The drawings were prepared using a camera lucida. Dimensions are given in micrometres, with the range (and mean in parentheses).

The type-specimens are deposited in the British Museum (Natural History), London, and the Muséum national d'Histoire naturelle, Paris.

Registration numbers : holotype BM(NH) 1989.1.5.64 (*Scorpaena porcus*); paratypes BM(NH) 1989.1.5.65-68; MNHN 59HF (*S. porcus*); BM(NH) 1989.8.14.1-2 (*Serranus cabrilla*); BM(NH) 1989.8.14.3 (*S. scriba*).

#### ZOOGONIDAE Odhner, 1902

#### LEPIDOPHYLLINAE Stossich, 1903

#### DERETREMA Linton, 1910

#### ***Deretrema (Spinoderetrema) scorpaenicola* n. sp.**

(Figs 1-3)

HOSTS, SITE, PARASITE INDICES : *Scorpaena porcus* L. [Scorpaenidae], gall-bladder, 69 fish autopsied. May 1988 (56 fish examined) : prevalence 21.4 %, abundance 0.27, mean intensity 1.25. October 1988 (13 fish examined) : prevalence 38.4 %, abundance 0.54, mean intensity 1.4. Total : prevalence 24.6 %, abundance 0.32, mean intensity 1.29. — *Labrus merula* (L.) [Labridae], gall-bladder, 18 fish autopsied : prevalence 5.6 %, abundance 0.05, mean intensity 1. — *Serranus cabrilla* (L.) [Serranidae], gall-bladder, 7 fish autopsied : prevalence 28.6 %, abundance 0.43, mean intensity 1.5. — *Serranus scriba* (L.) [Serranidae], gall-bladder, 40 fish autopsied : prevalence 5 %, abundance 0.05, mean intensity 1.

LOCALITY : Mediterranean Sea off western coast of Corsica at Scandola Nature Reserve.

MATERIAL STUDIED : 28 adult worms.

#### DESCRIPTION

Living worm stout, thick, opaque, regularly oval. Flattened worms slightly attenuated at extremities. Greatest width at level of ovary (figs 1, 2).

*Tegument* : Thick, covered with fine, elongate spines, not easily seen; more distinct on dorsal surface than ventral; numerous, long and powerful on ventral surface near posterior extremity. These long caudal spines are embedded in wall of gall-bladder of host, forming accessory attachment organ in addition to suckers (figs 1, 2).

*Suckers* : Oral sucker terminal; rounded; aperture ventral. Ventral sucker powerful; rounded; in mid-body or nearly preequatorial.

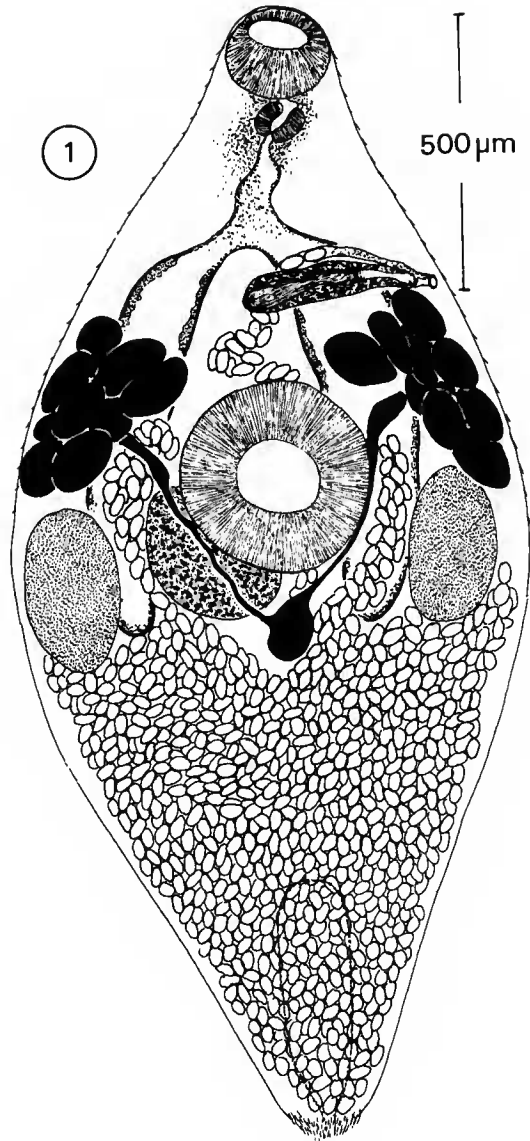


FIG. 1. — *Deretema* (*Spinoderetema*) *scorpaenicola* n. sp. from the gall-bladder of *Scorpaena porcus*, Scandola, Corsica (May, 1988). Ventral view of holotype, flattened. BM(NH) 1989.1.5.64.

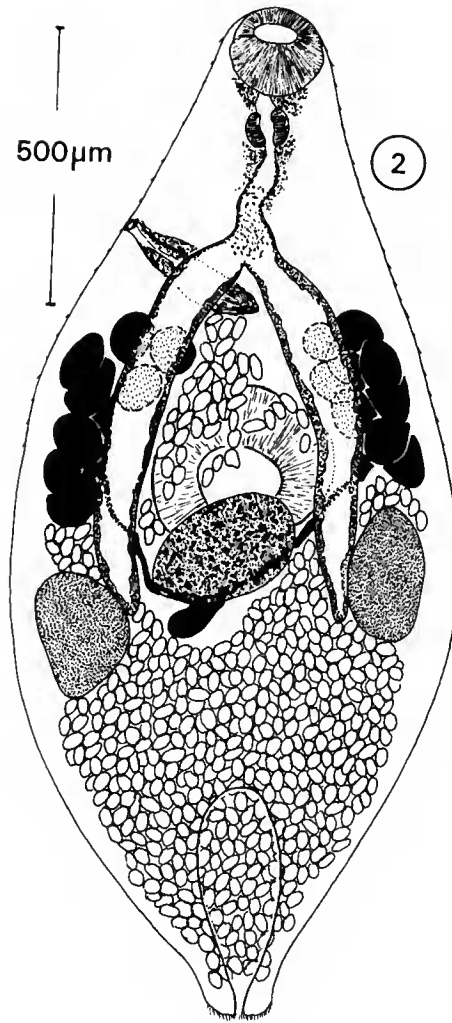


FIG. 2. — *Deretrema (Spinoderetrema) scorpaenicola* n. sp. from the gall-bladder of *Scorpaena porcus*, Scandola, Corsica (May, 1988). Dorsal view of paratype, flattened. BM(NH) 1989.1.5.65-68.

*Digestive system* : Mouth opens through centre of oral sucker. Prepharynx always very distinct. Numerous gland-cells ensheath prepharynx, particularly at base of oral sucker. Pharynx subspherical, powerful; very small spines present in anterior part. Numerous gland-cells around base of pharynx. Œsophagus always present; narrow anteriorly, wider posteriorly; thick-walled. Intestinal bifurcation mid-way between pharynx and ventral sucker. Cæca voluminous; thick-walled; pass between ventral sucker and testes; terminate at level of

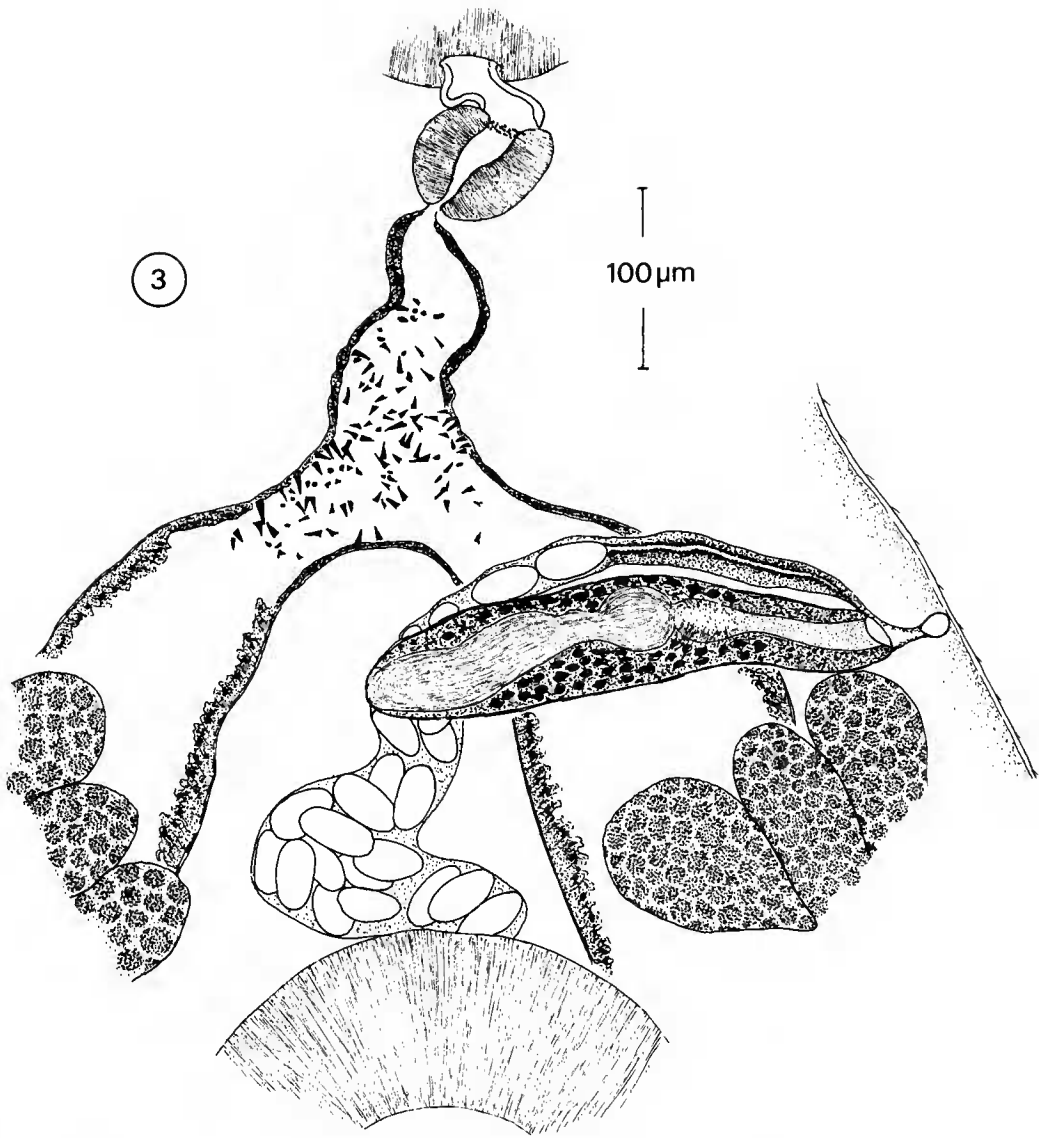


FIG. 3. — *Deretrema (Spinoderetrema) scorpaenicola* n. sp. from the gall-bladder of *Scorpaena porcus*, Scandola, Corsica (May, 1988). Ventral view of terminal genitalia and pharynx region of holotype, flattened. BM(NH) 1989.1.5.64.

testes. Lumen of posterior œsophagus and anterior part of cæca ornamented by irregularly arranged spines, relatively long (11-14  $\mu$ m) and sharp (fig. 3).

*Male reproductive system* : Testes near margins of body, at or about level of posterior margin of ventral sucker, not rigorously symmetrical, one may be placed a little more anteriorly than other; ovoid with entire margins. Cirrus-sac restricted to forebody; bifurcal or slightly post-bifurcal; rectilinear; long axis perpendicular or nearly so to long axis of body; reaches to about median line; opens on left margin of body (fig. 3). Seminal vesicle internal; bipartite but constriction not always distinct; surrounded by gland-cells. Pars prostatica short; vesicular. Ejaculatory duct distinct, narrower and longer than pars prostatica; thick-walled. Cirrus not seen everted,

*Female reproductive system* : Ovary ovoid; long axis oblique to long axis of worm; margins entire; in median line or just to right; overlapping posterior border of ventral sucker or at posterior margin. Seminal receptacle and Laurer's canal not seen. Uterine coils occupy bulk of hindbody. Metraterm distinct, not strongly muscular (fig. 3). Vitellarium follicular, follicles large; in two lateral bunches; partly extra-cæcal; lateral and anterior to ventral sucker; right bunch with 9 follicles, left bunch with 9-12; left bunch posterior to cirrus-sac. Vitelline collecting ducts pass around posterior margin of ventral sucker; unite with voluminous post-ovarian and median vitelline reservoir. Eggs operculate; strongly tanned; those in proximal uterus smaller than those in distal. Genital atrium reduced. Genital pore on sinistral body-margin, at level of intestinal bifurcation.

*Excretory system* : Pore terminal. Vesicle seen only in living animal; cylindrical; reaching about halfway along hindbody.

MEASUREMENTS (from 10 flattened worms from *Scorpaena porcus*) : Length : 1,170-2,020 (1,670); Width at level of ovary : 490-956 (696); Forebody : 453-830 (647); Hindbody : 517-1,000 (780); Oral sucker : 137-219  $\times$  130-229 (167  $\times$  176); Ventral sucker : 217-346  $\times$  213-352 (291  $\times$  300); Prepharynx : 0-70 (25); Pharynx : 56-85  $\times$  50-96 (68  $\times$  70); Oesophagus : 130-217 (168); Right testis : 160-271  $\times$  96-195 (215  $\times$  138); Left testis : 130-250  $\times$  113-185 (200  $\times$  149); Cirrus-sac : 240-336  $\times$  35-75 (283  $\times$  59); Ovary : 184-330  $\times$  144-293 (243  $\times$  188); Distance from posterior margin of pharynx to genital pore : 170-310 (243); Distance from genital pore to anterior margin of ventral sucker : 117-255 (184); Eggs in distal uterus : 43-54  $\times$  22-27 (47.5  $\times$  24); Sucker ratio : 1 : 1.36-2.10 (1.76); Oral sucker/pharynx ratio : 1 : 0.35-0.48 (0.41); Forebody/hindbody ratio : 1 : 0.95-1.47 (1.20).

## DISCUSSION

This species belongs in the family Zoogonidae and fits into the subfamily Steganodermatinae Yamaguti, 1934, as recognized by YAMAGUTI (1971). BRAY (1987*a, b*) considered that the name Lepidophyllinae had priority over Steganodermatinae. The species is considered to belong in the subgenus *Deretrema* (*Spinoderetrema*) Bray, 1987, as it possesses the following characteristics : tegument spinous; bulk of uterus posterior to gonads; vitellarium disposed overlapping and anterior to ventral sucker.

BRAY (1987*b*) listed the five species in the subgenus *Deretrema* (*Spinoderetrema*) and gave

a key to them. According to this key, *D. (S.) scorpaenicola* is most similar to the species *D. (S.) Sebastodis* and *D. (S.) acutum*, but it differs from the species in the subgenus in the following :

— *D. (S.) Sebastodis* (Yamaguti, 1934) which is recorded from *Scorpaenopsis cirrhosa* and *Sebastes schlegeli* of Japan but also in *Serranus hepatus* of Mediterranean (PARUKHIN, 1976), has a distinctly pre-testicular ovary, testes entirely in the hindbody and close together and large eggs with the range 51-57  $\mu\text{m}$  long.

— *D. (S.) acutum* Pritchard, 1963, from numerous definitive hosts of Pacific, has cæca which pass posteriorly to the testes, the testes are entirely in the hindbody, the ovary tends to be pretesticular and the eggs are reported to have a range of 32-49  $\mu\text{m}$  long.

— *D. (S.) plotosi* Yamaguti, 1940, from several hosts of Pacific, has cæca which pass posteriorly to the testes, vitelline fields which are almost confluent in the median line and a sucker ratio which is usually 1 : > 2.

— *D. (S.) fellis* (Yamaguti, 1934) from *Sillago sihama* of Japan and *D. (S.) ovale* Machida, 1984 from *Myripristis violaceus* of Pacific have a sucker ratio close to 1 : 1.

In the Mediterranean, the subgenus *Deretrema* (*Spinoderetrema*) has been recorded infrequently. *Deretrema* sp. was recorded and figured from *Blennius pavo* (Blenniidae) by PAGGI & ORECCHIA (1976), and recorded from *B. pavo* and *B. gattorugine* by ORECCHIA & PAGGI (1978) all from the Tyrrhenian Sea. *Deretrema Sebastodis* Yamaguti, 1934, was recorded but non described or figured from the gall-bladder of *Serranus hepatus* (Serranidae) off Lampedusa Island in the southern Mediterranean by PARUKHIN (1976). *D. (S.) scorpaenicola* resembles the species figured by PAGGI & ORECCHIA (1976) but differs in the microhabitat (intestine) and the size of the oral sucker calculated from the figure and its scale. It may be that little importance can be attached to this latter point as the figure is described as a 'disegno schematica'. BRAY (1987b) observed that this form from the blenny appeared to belong in the subgenus *D. (Spinoderetrema)*, and despite the slight differences enumerated above, we think that the blenny parasite is likely to be conspecific with *D. (S.) scorpaenicola*. We also think it possible that the gall-bladder form referred to as *D. Sebastodis* from the Mediterranean by PARUKHIN (1976) is conspecific.

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